

## Patent

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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In re Application of: : Docket No: ACA 6124 PDUS  
LARRY L. BRADFORD et al. :  
Serial No: 09/392,434 : Examiner: R. Sargent  
Filing Date: September 9, 1999 : Group Art Unit: 1711  
Title: POLYURETHANE FOAM :  
CONTAINING FLAME RETARDANT :  
BLEND OF NON-OLIGOMERIC :  
AND OLIGOMERIC FLAME RETADANTS :  
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RESPONSE

Honorable Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

This is in response to the Office Action of June 20, 2003.

The Examiner is requested to remove the section 112, second paragraph rejections for the reasons that follow:

- The "no more than about 30 mg KOH/g" language is intended to have the "no more than" portion of that language relate to the "about 30 mg KOH/g" portion so as to allow that the uppermost limit of the range will be equated with "approximately 30 mg KOH/g". The Examiner is invited, in this regard, to peruse the attached pages A-2 and A-3 (where marked) from the Attorney's Dictionary of Patent Claims, Vol. 1 (LexisNexis 2003).
- The "hydroxy functionality" phraseology language used by the applicants is intended to directly relate to the hydroxy number

aspect that the Examiner has raised. It is deemed that this would be understood by the person of ordinary skill in the art in view of the applicants defining their "hydroxy functionality" statement by using numerical values that carry the "mg KOH/g" unit.

The various art rejections need to be removed for the reasons that follow:

- All reliance upon the two Fearing patents should be removed since the applicant's use of the terminology "organophosphate" in broadly defining the oligomeric flame retardant additive would be understood by the person of ordinary skill in the art as defining over the Fearing teachings, which do not suggest the use of such a composition. The Examiner is incorrect in concluding on page 4 of the Action that "organophosphate" does not exclude the Fearing oligomeric component. If this reasoning is maintained he is requested to provide literature citations demonstrating that the art did not distinguish the phosphonate and phosphate classes from one another. Moreover, it is clear that Fearing takes pains to define his component as a "poly(oxyorganicphosphate-phosphonate) and specifically mentions (e.g., at Col. 3, lines 60-62 of the '534 patent) that the unit in such a material has a particular mole ratio of "...organophosphonate phosphorus to phosphate phosphorus ...." Fearing thus clearly adopts what the present applicants deem is a clear art-recognized distinction between the phosphate and phosphonate classes of material that the Examiner has improperly sought to ignore in examining the applicants' new Claims. Attached to this Response are pages 4-5 from

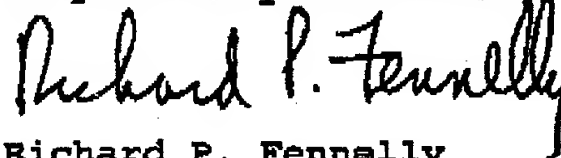
the classic work by G.M. Kosolapoff, Organophosphorus Compounds that also clearly distinguishes phosphonates, which are esters of phosphonic acids, from phosphates. The former have an R-P bond that is lacking in the latter, which have an RO-P bond at that location. Also attached is Ullmann's Encyclopedia of Industrial Chemistry, Fifth Completely Revised Edition, Vol. A 19 (1991), pp. 559-566 where the phosphonic acids and their derivatives, including the phosphonates (see 9.4) are discussed in section 9 and its subsections with the esters of phosphoric acid (the "phosphate" esters) being relegated to a separate section 10.

- With removal of the Fearing citations for the reasons previously given, the only remaining foundation for the art rejections is the combination of Sicken and Keppeler. That combination should be removed since Keppeler, in advocating a fire retardant system at Col. 7, lines 33-36, states that such a system "is" "a combination of at least one liquid flameproofing agent which is reactive towards isocyanates and at least one solid flameproofing agent". Thus, like the applicants, a two-component system is mandated. While the Examiner has stated on page 4 of the Office Action that Keppeler is "replete" with suggestions of employing "organic" flame retardants, such references are only made at Col. 7, line 37 to Col. 8, line 16 in connection with the first agent required by Keppeler: the "liquid flameproofing agent which is reactive towards isocyanates".
- If it is assumed for the sake of argument that this section suggests one of the applicants' claimed components, it is clear that Col. 8, lines 17 to 36 of Keppeler, which

relates to the *other* required, solid agent, does not fill in the missing requirement of the applicants' system. This particular section of Keppeler *is* directed to inorganic-type flame retardants and certainly does not show or even suggest the possibility of choosing either an a phosphate ester, such as defined in (a) of Claim 1, or an oligomeric organophosphate, such as defined in (b) of Claim 1.

Allowance of the pending Claims is requested in view of the amendments and comments contained herein.

Respectfully submitted



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